

CLAIMS

1. A light receiving or light emitting device in which a plurality of particulate semiconductor elements that have a light-to-electricity transducing function or an electricity-to-light transducing function are incorporated lined up in at least one row, this device being characterized in that

each of said semiconductor elements has a pair of electrodes that are disposed in spot form on both end parts of the element with the center thereof interposed;

a pair of conductive wire members that connect the plurality of semiconductor elements in each row in parallel are provided; and

a transparent covering material that covers all of the semiconductor elements and conductive wire members in embedded form is provided.

2. A light receiving or light emitting device according to claim 1, wherein a plurality of semiconductor elements are arranged in one row, and said conductive wire members and covering material possess flexibility and are constructed as a flexible cord.

3. A light receiving or light emitting device according to claim 1, wherein a plurality of semiconductor elements are arranged in a plurality of rows on a same plane, said conductive wire members and covering material possess flexibility, and the device is constructed like a panel with flexibility.

4. A light receiving or light emitting device according to claim 1, wherein a plurality of semiconductor elements are arranged in a plurality of rows on a same plane, said covering material is made of hard synthetic resin, and the device is constructed in a form of a hard panel.

5. The light receiving or light emitting device according to claim 3 or claim 4, wherein the semiconductor elements in each row are connected in series to semiconductor elements in one or more rows adjacent to the row by conductive wire members.
6. The light receiving or light emitting device according to claim 1, wherein said semiconductor elements comprise a spherical element main body made of p type or n type semiconductor, and a pn junction, and said pair of electrodes are connected to both ends of said pn junction.
7. The light receiving or light emitting device according to claim 1, wherein said semiconductor elements comprise a cylindrical element main body made of p type or n type semiconductor, and a pn junction, and said pair of electrodes are connected to both ends of said pn junction.
8. The light receiving or light emitting device according to claim 3 or claim 4, wherein said semiconductor elements consist of light receiving elements, and the device is a solar cell panel that receives sunlight and converts the light into electricity.
9. The light receiving or light emitting device according to claim 3 or claim 4, wherein said semiconductor elements consist of light emitting elements, and the device is a surface-emitting light emitting panel.
10. The light receiving or light emitting device according to claim 3 or claim 4, wherein partially cylindrical lens parts that correspond to the semiconductor elements of the respective rows are formed in a vicinity of a surface of said covering material.
11. The light receiving or light emitting device according to claim 3 or claim 4, wherein a protective film is formed on at least one surface of said covering

material.

12. The light receiving or light emitting device according to claim 3 or claim 4, wherein a reflective film that reflects light is formed on any one surface portion of said covering material.

13. A method for manufacturing a light receiving or light emitting device in which a plurality of particulate semiconductor elements that have a light-to-electricity transducing function or an electricity-to-light transducing function are incorporated lined up in at least one row, comprising:

a first step in which a plurality of semiconductor elements, a temporary fastening plate to which plural conductive wire members are temporarily fastened and a retaining plate having a plurality of retaining holes are prepared;

a second step in which said retaining plate is fitted into an opening part of the temporary fastening plate, respective semiconductor elements are fitted in the retaining holes, and intermediate portions in the direction of height of the semiconductor elements are held by the retaining holes; and

a third step in which the pairs of electrodes of said semiconductor elements are electrically connected to the conductive wire members.

14. The light receiving or light emitting device according to claim 13, wherein in the third step, the pairs of electrodes of the semiconductor elements are electrically connected to the conductive wire members by irradiating a metal film with a low melting point formed on the surface of said pairs of electrodes with a heating beam.